

2.4 Square Roots

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Taking the square root is the opposite of squaring a #.

Review of squaring

$$\begin{aligned}12^2 &= 144 \\11^2 &= 121 \\10^2 &= 100 \\9^2 &= 81 \\8^2 &= 64 \\7^2 &= 49 \\6^2 &= 36 \\5^2 &= 25 \\4^2 &= 16 \\3^2 &= 9 \\2^2 &= 4 \\1^2 &= 1 \\0^2 &= 0\end{aligned}$$

Perfect Squares.

Perfect Squares

The "square root of 16" = $\sqrt{16}$

$$\sqrt{4^2} = \sqrt{16} = 4$$

$$\sqrt{10^2} = \sqrt{100} = 10$$

$$\sqrt{0.04} = \underline{\underline{0.2}}$$

$$0.2 \times 0.2 = 0.04$$

← Note

$\sqrt{\text{decimal \#}} = \text{larger decimal \#}$

$$\sqrt{0.16} = 0.40$$

$$\sqrt{\frac{9}{25}} = \frac{\sqrt{9}}{\sqrt{25}} = \frac{3}{5}$$

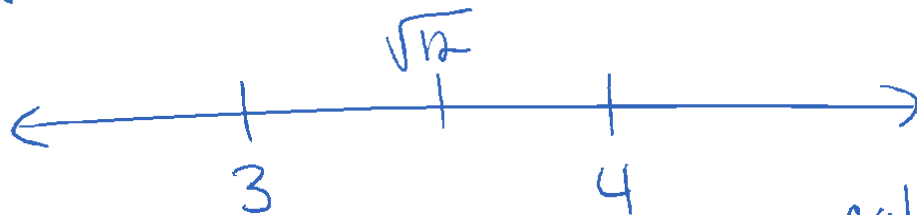
Estimating with non-perfect squares

Which two integers is $\sqrt{12}$ between?

$$\begin{array}{c} \sqrt{9} \\ = 3 \end{array}$$

$$\begin{array}{c} \sqrt{16} \\ = 4 \end{array}$$

$\sqrt{12}$ is between 3 and 4



$$\sqrt{12} \approx 3.5$$

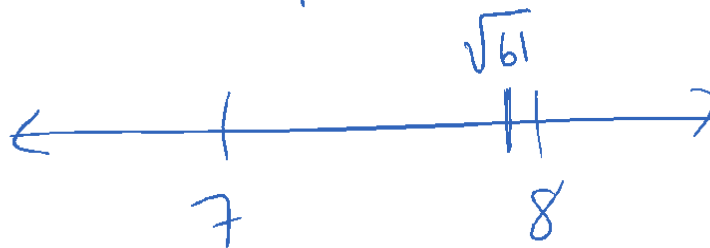
↑
approximately equal

calculator
 $\sqrt{12} = 3.4641\dots$

Which two integers is $\sqrt{61}$ between?

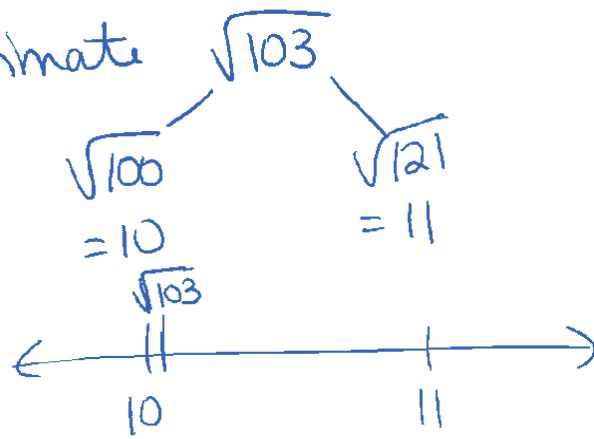
$$\begin{array}{c} \sqrt{49} \\ = 7 \end{array}$$

$$\begin{array}{c} \sqrt{64} \\ = 8 \end{array}$$



estimate $\sqrt{61} \approx 7.8$

Estimate



$$\sqrt{103} \approx 10.1$$

↑

Practice pg 78 # 2, 3, 4, 7, 9, 10, 13

Square = $()^2$

square root = $\sqrt{\quad}$